**AGEC 643**

**Homework 2**

**Due Oct. 14, 2011 – before NOON**

1. Re-do Homework 1, problem 3. Use the data in HWK2DATA2011.XLSX, worksheet Data 1 to do the following problems.
2. Use the Cow Price variable.
   1. Estimate parameters with UPES (MLE only).
   2. Estimate parameters using Kernal Density function: Gaussion, Parzen, Triweight and Histogram. Hint: Make 4 columns of cow data and draw smooth CDF’s of all 4 columns at one time. Be sure to fix the end F(x) values so they go to zero and one.
   3. Simulate the 16 parametric and 4 KD distributions using the same common USD. Show your work with VFORMULA.
   4. Rank the distributions using CDFDEV and preset the results in a neat table.
3. Simulate the livestock prices in Data 1 as MVN. Use the Covariance matrix method. Provide summary statistics and MV validation statistics. Document all of your steps with VFORMULA( ).
4. Repeat problem 3 but use the general formula for MVN.
5. Repeat step 3 but simulate the variables MVE as percent deviations from the mean.
6. Repeat step 3 but simulate the variables as a MV Copula (Frank).
7. Build a simulation model to estimate the quantiles of the distribution of a Dickey-Fuller t-test statistic for a random walk with drift data generating process (DGP). That is, under the null hypothesis of a random walk, assume that *yt* evolves according to



where the *εt* are independently identically distributed N(0,1). Use the following testing model:



Do this for two cases: once for *α* = 1 and once for *α* = 35. For both cases, estimate the quantiles for sample sizes 25, 50, and 100. Use 10,000 trials for each simulation. Report the following quantiles: 0.01, 0.025, 0.05, 0.10, 0.90, 0.975, 0.99. What implications for inference do the results suggest?